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ABSTRACT

A fact-finding exercise used in a study of principals' problem-solving behaviors is analyzed in this paper. Forty-two subjects with varying degrees of administrative experience participated in fact-finding and thinking-aloud exercises prior to responding to a case study. Problem definition, a key component of the problem-solving process, was a focus of the fact-finding exercise. Findings indicate that information learned during the fact-finding exercise was utilized by less than half of the participants, least often by the least and most experienced groups. A conclusion is that, despite factual context, experience in dealing with similar problems was the most significant factor in the type of problem-solving approach used. The appendix provides background information on the case study. Seven tables and four figures are included. (10 references) (LMI)

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"The Relevance of Factual Context in Attacking Ill-structured Problems in School Administration"[1]

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[1]Presented as part of a symposium "Perspectives on Principals' Problem Solving", presented at the Annual Meeting of the American Educational Research Association, Chicago, 1991.

Introduction

This paper is part of the symposium, "Perspectives on Principals' Problem Solving" and presents the data analysis for one aspect, the fact-finding exercise, of a larger study on principals' problem solving and ill structured problems. The research background and assumptions on which this study is based are given in the introductory symposium paper, "A Study of Principal Problem Solving." The principals and aspiring principals who participated in the study took part in five activities: an initial small group discussion of problem solving, the fact-finding and think aloud exercises, a battery of paper and pencil inventories and questionnaires, and a structured, open-ended personal interview. The fact-finding exercise was a question and answer session preceding the case study of the think aloud exercise; it gave the respondent the opportunity to dig out facts about a hypothetical school, Sugar Maple Elementary, and its surrounding community and school system. During this portion of the exercise, the respondents could ask as many questions as desired, which were answered by the researcher from background information constructed to supplement the case. In the think aloud exercise which followed, the respondents were given a case study, concerning the teacher-librarian, Miss McDonald, and resource centre at Sugar Maple School, and were asked to respond by giving their solution s to the problems posed by it. A copy of the case is appended in the third symposium paper, "An Analysis of school administration, using schema theory" (Nagy, 1991).

The fact finding exercise was included in the design because of experience gained from a pilot study conducted by Nagy and Allison (1988). Their study used virtually the same case with a different group of principals, but included only the think aloud exercise. They reported that the respondents' solutions were qualified by lack of knowledge of the local context of the case. Hence it was decided that for this larger project a fact-finding exercise would be designed to assess the use made of available contextual background information and its influence on the final solutions proposed.

Method

For the fact-finding exercise it was necessary to construct a scenario about the school, consisting of background information on student population, the school system, the community, the school's physical facilities, programs, resources, the staff, and the library and librarian. A copy of the background information is appended to this paper. The background information and the case were vetted for reality and consistency by two supervisory officers and three principals from two school systems which were not otherwise involved in the project . Only minor changes were noted and made.

The sample design called for 40 respondents, 24 principals of varying levels of experience and 16 non-principals, either aspirants to a principalship and recent graduates of the Ontario principal's certification course, or education students who had not yet had their first practice teaching session in a school. The student teachers formed group 1, the entrants; they had an undergraduate B.A. or B.S. degree, but were just beginning their studies in education and had not yet had a practice teaching session in a school. The eight certification graduates formed group 2, the aspirants. The 24 principals were divided into three groups: 8 with one to three years experience as principal (the rookies, group 3), 8 with 10 to 16 years (the seasoned principals, group 4) and 8 with more than 20 years such experience (the veterans, group 5). In the event, ten students participated, bringing our total sample size to 42.

In the fact-finding and think-aloud exercises, each respondent was paired with one of the four research team members, and the session was audio-tape recorded to ensure an accurate record. Each respondent was given the same instructions: he or she was to play the role of a newly appointed principal to Sugar Maple Elementary School and asked to respond to a problem situation in this school; prior to reading the problem, they were instructed to ask as many specific questions as they wished to gain any information they desired about the school and community. They were also invited to take notes, if they wished, on the information obtained, and most did so. The researcher, who had memorized the background facts, answered the respondent's questions from memory, with the exception of the student population data for which notes were referred to. If a question was asked

for which the answer was unknown (for example, "What is the breakdown by ethnic group of the staff?") the researcher responded that that information was not available. After the respondent had asked all the questions he or she wanted to, they were given a copy of the case and asked to respond to it by "thinking aloud". These sessions were audio-taped and subsequently transcribed, so that an accurate record was kept of questions and answers; one respondent from group 4 inadvertently did not have his session tape recorded, nor were there complete notes, so that his responses were not analyzed for the fact-finding or think aloud analysis. Consequently, for analysis purposes there were 41 respondents.

Results: Information Obtained

The fact-finding data were initially analyzed by counting the number of questions asked and classifying the information thus obtained by 'grounded' topics (Glaser & Strauss, 1967; Lincoln and Guba, 1985) and then by more general grounded categories. Topics were assigned by classifying each question by subject matter as it was read from the transcript. After all the questions had been classified in this manner, definitions were written for the resulting topics, and the initial classifications reviewed and adjusted. It became apparent during the initial classification that a distinction had to be made between the 'topics covered' and 'topics asked about.' The respondent would sometimes obtain more information than had been specifically requested; for example, a question about staff conflicts might elicit facts about the school's philosophy, obliterating the need to start a line of inquiry on that topic. Hence a record was kept of the subject of each question (topics asked about) and also information obtained (topics covered). In the discussion below, although the data for topics specifically asked about are given, the analysis focuses on the topics covered, that is, the information actually obtained.

Table 1 displays for each subject the experience group code (1, 2, etc.), the number of questions asked, the number of topics asked about and the number of topics covered, listed in order of number of questions asked. The number of questions ranged from a low of six to a high of 85; the number of topics covered ranged from five to 33.

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Insert Table 1 about here

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As can be seen by the experience group numbers, there is a slight tendency for both the totally inexperienced (the entrants, group 1) and the greatly experienced (the veterans, group 5) to ask fewer questions. Ten respondents, representing approximately 25% of the participants, asked 13 questions or less; seven were either in group 1 or group 5, and none in group 2 (the aspirants) who collectively asked the greatest number of questions. Ten respondents asked more than 40 questions; six were in group 2 and only two in group 5. Not surprisingly, the more questions asked, the more topics covered. There were 72 individual topics, determined by the questions themselves. Examples were the number of students in the school, the number of grades, professional development opportunities, and information about special education programs in the school. Table 2 gives the individual topics and the number of respondents, by group, who obtained information (topics covered) about each.

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Insert Table 2 about here

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There was only one topic which all 41 respondents covered--community type--and two topics which were covered by 90% of the respondents: the number of grades in the school and the number of students. But the majority of the topics were touched on by relatively few respondents; 80% of the topics (57) were covered by less than 50% of the people.

There is some indication that the highly experienced principals extracted more information from their questions than the less experienced people. Figure 1 is a scatter diagram of the number of questions asked (Questask) by the number of topics covered (Areascov) plotted for each experience group (ID Pxcode). It shows that group 5 respondents elicited information on a given number of topics with fewer questions and thus more efficiently than those in other groups. A line representing group 5 responses has a more horizontal slope than the corresponding lines for the other groups. This

result is similar to the findings by Kaufman & Patel (1989) in their work on medical diagnostic problem solving. They found expert practitioners elicited more diagnostic information from patients, using fewer questions, than nonexperts (residents and medical students).

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Insert Figure 1 about here

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The 72 individual topics were then collapsed into 18 general categories. In Table 2, the individual topics are clustered by general category, although it is not specifically designated as such, with a space separating one category from another. In some cases, such as school philosophy, a category consists of only one topic. The categories are named in Table 3, along with the number of respondents who obtained information on at least one topic within that category.

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Insert Table 3 about here

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There was considerable agreement between the less and more experienced groups as to which categories they should inquire about and which were evidently less important. All experience groups asked questions about class and student demographics and the community, and all neglected the school's philosophy and professional development. However, these figures are skewed by the entrant group (group 1). There was an even greater degree of agreement between the aspirants and people already in the role of principal were substantially agreed on what information is desired when confronting a situation in a new school. They collectively chose the same categories to enquire about, or to pass over. The entrants, by contrast, asked fewer questions about the nature of the staff (staff description), school programs, school operations, and building and grounds than the other groups; they also asked more questions about the students than the others.

Table 4 gives the categories covered by 80% or more, or 20% or less of the respondents, and the actual number of respondents who gained information in a particular category. Four categories were touched on by 33 or more respondents and four by ten or fewer. Thus, 80% or more of the respondents inquired about approximately 20% of the total categories; if we use the criterion of 75% (31 respondents) then four more categories, Community/School Relations, Students, Vice-principal and School Programs, are added to the other four and 45% of the general categories were touched on by 75% or more of the respondents.

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Insert Table 4 about here

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The respondents made some interesting choices. Everyone asked some question about the number of grades and/or classes in the school, but only three respondents asked anything at all about professional development. Like the non-expert principals described in Leithwood and Stager (1989), our respondents were very interested in the previous principal: 11 respondents in groups 1 and 2, and 8 in groups 3 and 4 asked for information about him. Virtually all respondents obtained information not only about the number of grades, but also the number of staff and the community type. Most were interested in the school's programs (although a sizeable minority--8 of 28 or almost 30%--inquired only about special education programming). Likewise, only a minority asked about the school's philosophy or general issues facing the school.

Table 4 also gives the corresponding figures for the individual topics for which information was obtained. And in terms of individual topics, there was still less agreement. None of the program areas were asked about by 80% or more of the respondents, and very few asked about student achievement or morale. Only three topics were covered by 80% or more of the respondents.

There is a slight connection between the disinclination to be proactive and seek out problems and the amount of information gained in the fact finding. In the fifth exercise of the day, an individual structured interview, we asked, "How important is it to actively seek out problems?" Seven of the

respondents in groups 2-5 said it was not important; 24 said either it was important, or that it was important to be aware of potential problems so that preventative actions could be taken. (Group 1 participated only in the fact finding and think aloud exercises, and so interview information is lacking for them for them.) A typical negative response was, "Not important. Deal with problems that exist and with those that might come out of your actions." Although there was no correlation between the number of questions asked and the belief that it is important to seek out problems, only one of the seven who replied negatively asked more than 40 questions. Four asked less than 20 questions. Thus a reactive stance tended to inhibit active information seeking in the fact-finding.

There is some evidence the entrants' lack of knowledge about the administration of schools inhibited their questioning. Many questions asked for explanations (what is a teacher-librarian? Is there a mandated library program?) and two respondents ended the fact-finding after only a few questions by admitting they didn't know what else to ask.

Results: Fact-finding and the Case Response

The respondents' responses to the case were examined in detail for references to the information obtained during the fact finding, and a list made of those occasions. Nineteen respondents ignored the fact finding information when they went to solve the case; one person even said it had not been very useful and so she ceased to try to remember the facts and keep them straight in her mind. Just over half of the respondents (22) alluded to information ascertained from the fact finding. Seventeen of these respondents explicitly incorporated knowledge obtained in the fact finding to formulate the problem to be solved (3 respondents) or to develop their solution (12), or both (2 respondents). The remaining five commented on correlations with information from the case, or used it to interpret details: for example, the majority of teachers who supported the present policy "must be the older teachers," was an interpretation based on the fact finding. However, these five respondents made no explicit use of the information in their proposed action plans or in their definition of the problem. Since the information was acknowledged but then ignored, for the purpose

of further analysis those who only commented on information from the fact finding have been grouped with those who ignored the information to form a 'Did Not Use' category.

Table 5 displays the number of respondents by experience group who did or did not use the fact finding information. A pattern similar to that of who asked the greater number of questions emerged. Respondents in groups 1 and 5 tended not to use the information they obtained; the members of groups 2, 3 and 4 tended to do so at least half the time. Thus the factual context was of little if any importance in developing a solution to the case study problem, particularly for the entrants who had no professional experience in education, and the veterans who had in excess of twenty years experience as a principal.

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Insert Table 5 about here

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The Influence of Fact Finding on Problem Definition

Problem definition, or the way the problem is interpreted, is a key component of the problem solving process (Greeno, 1978; Simon, 1978). In five cases, the respondents utilized information from the fact finding to define the problem, or an aspect of the problem, during the think aloud. There was no correlation between the tendency to conceptualize the problem in terms of the local context and experience; quite the contrary, each group had a member who did so. Four of the five (one each from groups 1, 2, 3, and 5) had ascertained that there was a split in teacher experience, and that there was some staff conflict along experience group lines and resulting poor staff morale. They had also learned that the school was situated in a lower middle class neighbourhood, with a large population of visible minorities, and the attending problems. Consequently, they defined the key issues as focusing on the staff problems (for example, the older teachers' philosophy is the key issue," and "It's a personnel problem in that we have a divided staff") or the community problems (for example, "The staff face many problems, ESL, community tensions, and so...solve by facilitating staff morale," and "Problem is not just library, but one of school and community relations.") The fifth respondent (from

group 4) picked up on other program weaknesses in the school, such as physical education and music; he said that the library was only one of many problems, and constructed a plan to discuss and look at other programs along with the library.

None of the other respondents explicitly utilized the fact finding information in deciding what the problem was. Thus the factual context exerted minimal influence on problem definition. Moreover, a novice was as likely as a veteran to formulate the problem in light of the specific context; however, the most likely event was that no one, novice or veteran, would do so. This lack of consideration given to contextual circumstances is supported by information gained in the fifth exercise, the interview, in which all respondents in groups 2-5 were asked as part of that interview to define the actual problem, or problems, in the case. The majority of the respondents (22 of 31) mentioned only one problem; the remainder mentioned two or more problems they felt were central to the case. All but three of the replies could be classified in one of seven areas. Table 6 lists these areas, the number of respondents who chose that conceptualization and the use or non-use of fact finding information.

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Insert Table 6 about here

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Although the fact finding information was of little influence on problem definition, there is some connection between the topics of inquiry in the fact-finding exercise and the subsequent definition of the problem. Three categories of Communication, Miss McDonald, and Principal's Lack of Skills, were derived from information only in the case. None of the respondents, with one exception, who listed the Library Program or Library Location or Resources as the problem asked about the library in the fact-finding. Of the six people who saw the lack of a clearly articulated philosophy as the actual problem, five had asked about school philosophy in the fact-finding (which in our scenario was not clearly defined). Likewise, for those targeting staff divisiveness and conflict, all but one had specifically asked about staff conflict in the fact-finding (which existed between the

more experienced and less-experienced teachers in our scenario). One person suggested that the problem was the lack of teacher mobility, an interpretation for which there was no evidence; the assertion was evidently based on pre-existing assumptions. However, this respondent was the only one to ask about the teacher transfer policy in the fact-finding (for which information was not available). In these latter three cases (school philosophy,staff conflicts and teacher mobility) there was a correspondence between the topics asked about and the problem interpretation. However, there is no evidence that the information obtained from the fact-finding informed the interpretation of the problem; an alternative explanation could be that the topics asked about were indicative of the respondents' interests, and these pre-existing interests influenced the problem definition. Certainly in the case of the 'teacher mobility' definition, this is the more likely case.

Moreover, experience seems as much an influence on problem definition as the fact-finding data. Group 5, which was the experienced and older group, preferentially defined the problem in terms of either staff conflict or the librarians lack of skill--a personnel problem at either a group or individual level. Group 2, the younger aspirants to a principalship, preferentially defined the problem programmatically, citing the need for a clear school philosophy or a better understood program. Although there is no interview data for group 1, the entrants, internal evidence from the think aloud indicates that those who did not use the fact finding information (80%) defined the problem in terms of the librarian's personality or competence (4) or as a communication problem (4). The two respondents who did incorporate fact finding data in their responses defined the problem as a philosophical one ("The old teachers' philosophy is the key issue") or as an inadequate library program (from the respondent who used the data in plans, but not definition). For group 1 too, the overwhelming majority defined the problem based on prima facie evidence presented in the case, even though all had obtained information about the nature of the community, and 60% had information on the nature of the teaching staff. Thus the influence of contextual information on problem definition seems minimal.

Use of Fact Finding in Proposed Solutions

The next step was to examine the extent to which information from the fact finding portion was alluded to in the respondents' proposed solutions to the case. Fourteen respondents specifically used such information in their plans for dealing with the problem. A summary of these instances and the number of respondents who utilised each fact are given in Table 7. The information utilized by a majority of the respondents (8) was the split between the highly experienced teachers and those recently appointed to the school. However, these respondents handled this fact in different ways: in political considerations about transfer timing or winning acceptance for new programs, in the need for healing and cooperation among the staff, in the need for more professional development, or in the veiled threat to change or be transferred.

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Insert Table 7 about here

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Five respondents went to the vice principal, or the secretary of many years standing, to gain more information about the history and nature of the school and community. In light of the fact that 31 (75%) of the respondents asked if they had a vice principal, and 14 learned they had an experienced secretary, the subsequent lack of comment about these individuals is surprising. The next group of most utilized facts was the nature of the community, its relations with the school, and closely tied to that, the number of students needing English as a Second Language instruction in the school. Plans derived from these facts centred on increasing community pride in the school, increasing the number of volunteers, and providing for the needs of a disadvantaged, visible minority population. Again, every respondent had ascertained the necessary information about the community and its problems, but such knowledge had no evident influence on their action plans.

Discussion

Less than half of the respondents formulated plans which alluded to the contextual data, and an even smaller number were influenced by the data in terms of problem definition. Did neglect of

the factual context lower the quality of the response, or did the conscious inclusion of such data improve the response quality? To answer this question, the action statements from the think aloud were extracted from the transcript for an outside assessment. The actions statements, in the respondents' own words, formed a summary of their solution which was graded independently for overall quality of response by three professors of educational administration. Their scores for each respondent's case were rated on a scale of 1 to 10 (ten high) and the three individual scores were highly correlated. (Details of the method and correlation are given in the fourth paper presented in this symposium by P. Allison and D. Allison). The average of their scores formed an index of quality labelled 'Qualmean'. Unfortunately, this assessment was done before the group 1 respondents had been added to the study, so that qualmeans are available only for groups 2-5.

To gain a measure of relevance of contextual information, the qualmean scores were plotted against the number of topics covered (Areascov) in the fact finding, the number of categories covered (Catcov), and the use or nonuse of fact finding information in case study responses. The plots are shown in figures 2, 3 and 4.

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Insert Figures 2, 3 and 4 about here

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Respondents who asked few questions and obtained very little prior information were as likely to have a high qualmean score as those who asked a large number of questions; likewise and perhaps surprisingly, those who asked many questions and covered many topics in some cases had low qualmean scores. In fact, the ability to obtain prior knowledge seemed to have no bearing on the perceived quality of that solution. Moreover, the use of contextual information had minimal affect on the assessed quality of the response; the box plot of figure 4 shows little difference in quality ratings between the two groups. The mean is slightly higher for those who used fact finding data, but the dispersion is greater.

It is interesting to speculate about why greater use was not made of the information gained from the fact-finding, and how these results relate to recent problem solving research. Gick (1986) contrasts information-process theories of problem solving and schema activated problem solutions. A schema is the accumulated knowledge related to problems of a particular type or nature and contains information germane to the goals, constraints and solution strategies for problems of that type. During the problem definition phase, certain features may activate a memory of knowledge and experience which is used to immediately devise a problem solution. Schema activation enables the problem solver to move directly from problem definition to solution implementation, bypassing the more traditional aspects of problem solving such as collecting information, formulating possible solutions and assessing alternatives. The more knowledge of the specific field domain one has, the more problem solving can be schema driven, and the less use will be made of contextual information. This finding is supported by the work of Martin, Slemon,Hiebert, Hallberg and Cummings (1989) on conceptualizations of expert and novice counsellors. Counsellors, like educational administrators, work in a multifaceted, value-laden domain, and are faced with many ill structured problems. Martin et al. found that expert counsellors had an extensive general knowledge of counselling that they used to deal with specific cases more efficiently than the novices.

There is evidence from both remarks made by the respondents and, for the entrants, internal evidence from the think aloud that substantiate the likelihood that such was the situation in this exercise. The 31 respondents in groups 2-5 were asked if they had "ever dealt with a similar case." 24 answered in the affirmative, and of these, 18 handled the case study problem much as they had the previous problem. Those who handled it differently did so because of time lines; in their previous situations, the offending party was within one or two years of retirement and the situation was tolerated or "ridden out." Many of the respondents expressed the influential role that experience played in their responses; for example, the respondent with qualmean 9.7 and who used fact finding information extensively, said that "[it's] the kind of situation that I've experienced a thousand times, and so I don't get specific thinking about one particular case. It's so common that...it just lumps

together and there's a category there and one of their catechisms that I just jump into." Another respondent who used the fact finding data, but whose , 1.7, was at the low end of the scale likewise affirmed the strong influence of experience: "what I tried to do was relate it as much as I could to things that I've experienced that helped me to understand this...and I saw a quite a few similarities between my present job and this one, which helped me identify some problem areas." As Gick suggested, as Martin et al. found, here too the contextual particulars are overshadowed by the common characteristics of a class of problems. Thus the problem was seen, for example, as that of an 'inept staff member' or a "communication problem' and handled in a schema activation mode, neglecting the factual context.

While such a method of problem solving is efficient, it may not be adequate to detect important contextual differences which could have an influence on the success of the solution. The respondents in the interview acknowledged that experience must be used with caution, and a successful solution for one case might not work in different circumstances. However, they gave little evidence of applying such caution in this exercise. It is interesting to speculate on the reasons why. Perhaps the think aloud methodology, admittedly artificial, encouraged a copy cat mode of thinking and discouraged a contextual approach. Perhaps the need to state an instant solution encouraged the use of a schema activation mode. Or perhaps the pressures and demands of the principalship inhibit a specific response to a specific problem and encourage reaching for the pigeon holed response. Whatever the reasons, experience in dealing with similar problems seemed to be the greatest influence in attacking an ill-structured administrative problem, and factual context regardless of theoretical importance played a minimal role.

TABLE 1

EXP GROUP	# of Q	Topics Covered	Topics Asked About
4	6	5	4
1	7	8	7
1	8	7	6
1	9	8	8
5	9	9	
4	12	16	12
5	12	12	10
1	13	10	8
1	13	13	10
3	13	16	12
1	14	13	12
4	14	15	12
3	15	19	14
5	15	23	10
2	16	14	13
3	16	11	9
5	19	17	16
1	23	18	18
3	23	22	19
1	24	20	18
5	26	28	25
1	27	14	14
4	29	25	22
1	30	23	22
5	31	33	23
2	33	26	22
3	33	21	21
3	35	33	25
3	36	23	20
4	36	25	20
3	39	25	22
5	41	31	23
5	43	38	27
2	43	31	27
2	44	33	27
2	46	46	31
2	48	33	31
2	51	37	31
2	56	38	26
4	66	30	28
4	85	33	30

Table 2

Number of respondents per group who obtained fact finding information in each listed area

TOPIC	1	2	3	4	5	TOTAL
Number of Grades	8	8	7	7	7	37
Number of Classes	1	5	3	1	2	12
Class Sizes	2	7	1	1	3	14
DH Class	3	7	5	6	8	29
Number of Students	9	8	7	6	8	38
School Future Growth	0	2	1	2	2	7
Stability of St. Population	1	1	0	0	0	2
Age of School	4	7	5	3	3	22
Physical Plant/Condition	0	3	2	3	3	11
School Layout/Size	4	6	3	2	3	18
Speciality Rooms	3	4	2	4	2	15
School Yard	3	7	1	2	2	15
Accessibility	0	1	0	1	4	6
School Location	8	6	5	4	6	29
Area:Physical/Facilities	2	3	1	3	0	9
Community Type	10	8	8	7	8	41
Community Support Services	0	0	0	2	2	4
Other Schools in Area	0	2	0	0	1	3
Parental Concerns	0	7	3	4	1	15
Parental Involvement	6	8	7	5	5	31
Community Use	1	5	2	1	1	10
Public Relations	0	0	1	1	1	3
Staff Community Activities	0	1	0	0	0	1
Vandalism/Discipline	6	3	2	2	2	15
Student Achievement	0	2	1	0	0	3
Student Pride/Morale	3	2	1	0	1	7
Extracurricular Activities	2	5	4	4	2	17
Vice-Principal	7	8	6	5	5	31
Staff Numbers	3	7	6	5	7	28
Gender/Ethnic Breakdown	3	4	1	0	0	8
Experience of Staff	6	8	7	3	6	30
Staff Qualifications	2	4	4	2	3	15
Staff Competence	0	3	2	1	0	6
Staff Leadership	1	2	0	0	4	7
Staff Conflicts	4	6	6	5	7	28
Socializing among staff	0	2	2	1	0	5
Support Staff	1	4	3	4	2	14
Teacher Assistants	0	2	1	2	4	9

TOPIC	GROUP: 1	2	3	4	5	TOTAL
Principal's Role	1	1	1	1	0	4
Staff Duties/Functions	1	1	1	1	1	5
Issues of Concern	1	3	1	2	5	
School Philosophy	1	4	0	1	3	9
New Programs	0	1	1	0	2	4
Whole Language	1	4	4	2	3	14
Intermediate Program	0	4	1	0	4	9
French Program	0	1	3	2	3	9
Math/Science	0	3	2	0	3	8
FS/IA	1	1	2	3	2	9
P.E.	1	3	1	1	2	8
Music	1	3	1	0	4	9
Arts	0	0	0	0	2	2
Library Program	0	3	1	2	3	9
ESL	2	7	4	4	7	24
Sp.Ed. Programming	2	5	3	5	6	21
Heritage Language Program	1	0	0	0	0	1
Professional Development	0	2	1	0	0	3
Superintendent	3	4	4	2	2	15
Superintendent's Goals	0	1	1	1	2	5
Trustees	0	1	0	1	1	3
Board Philosophy/Support	2	2	1	2	2	9
Board Size/Structure	0	4	2	3	4	13
Resource Teachers/Personnel	0	4	6	3	3	16
Family of Schools Structure	0	1	0	0	0	1
Board Transfer Policy	0	0	1	0	1	2
School Policies	1	1	1	0	1	4
Bussing	4	2	3	3	3	15
Lunches	0	4	2	2	1	9
School Schedule	0	3	1	0	2	6
Prep Time	0	2	3	0	0	5
Supplies/Resources	1	3	2	3	1	10
Budget	2	5	0	2	0	9
Last Principal	3	6	5	2	6	21

Table 3

Number of Respondents Obtaining Information in Each General Category

CATEGORIES GROUPS:	1	2	3	4	5	TOTAL
GRADE LEVEL STATS	8	8	8	7	8	39
STUDENT DEMOGRAPHICS	10	8	7	6	8	39
BUILDING & GROUNDS	5	8	6	5	5	29
COMMUNITY DESCRIPTION	10	8	8	7	8	41
COMMUNITY/SCHOOL RELATIONS	7	8	7	5	5	32
STUDENTS	7	7	6	6	5	31
VICE PRINCIPAL	7	8	6	5	5	31
STAFF STATS	10	8	8	6	8	40
STAFF DESCRIPTION	4	7	6	5	7	29
SCHOOL SUPPORT STAFF	1	4	4	5	4	18
PRINCIPAL/STAFF DUTIES	2	2	2	2	1	9
ISSUES/GENERAL	1	3	1	2	3	10
SCHOOL PHILOSOPHY	1	4	0	1	3	9
SCHOOL PROGRAMS	4	7	7	7	7	32
PROFESSIONAL DEVELOPMENT	0	2	1	0	0	3
BOARD/CENTRAL ADMIN	5	6	8	5	5	29
SCHOOL OPERATIONS	5	7	5	6	4	27
LAST PRINCIPAL	3	6	5	2	6	22

Table 4

Categories covered by at least 80% (33) of the respondents or by 20% (8) or 30% (12) or less:

Category	80%	20%	30%
Community Description	41		
Staff Stats	40		
Grade Stats	39		
Student Demographics	39		
Professional Development		3	
General Issues			10
Principal/staff duties			9
School Philosophy			9

Individual topics that at least 80% or less than 20% of respondents asked about:

Community type	41	
Number of Students	38	
Number of Grades	37	
Heritage Language Program		1
Staff Community Activities		1
Family of Schools Structure		1
Stability of St. Population		2
Arts Program		2
Board Transfer Policy		2
Professional Development		3
Public Relations		3
Student Achievement		3
Trustees		3
Community Support Services		4
Principal's Role		4
School Policies		4
New Programs		4
Staff Duties/Functions		5
Prep Time		5
Socializing Among Staff		5
Superintendent's Goals		5
School Schedule		6
Other Schools in Area		6
Building Accessibility		6
Staff Competence		6
Staff Leadership		7
Student Pride/Morale		7
Staff Gender/Ethnic Breakdown		8
Math/Science		8
P.E. Program		8

Table 5

EXPERIENCE GROUP	USED FF INFO	DID NOT USE FF INFO
Entrants: Group 1	2	8
Aspirants: Group 2	4	4
Rookies: Group 3	5	3
Seasoned: Group 4	4	3
Veterans: Group 5	2	6
TOTALS	17	24

Use of the Fact Finding Information by Age Group

Table 6

ACTUAL PROBLEM	Group 2	Group 3	Group 4	Group 5
Lack of Communication	1	1	1	0
Librarian's Personality, Skills	0	2	2	6
Principal's Lack of Skills	0	1	2	1
Lack of Clear School Philosophy	3	0	2	1
Staff/Personnel Problem	1	2	2	3
Library Program	2	2	1	1
Library (Location, Resources)	1	1	1	1
Other	1	0	1	1

Problem Conceptualization by Experience Group

Table 7

FACT	ACTION(S)	NUMBER
Vice Principal in School	Consulted with or delegated to VP	4
Little Parental Involvement	Fund raising project to increase involvement Plans to increase community involvement Increase volunteers from community; make school object of pride in community Work on building up Home and School Association	4
Low SES Community	Staff tense because of type of community; work on morale Ruled out community survey, given its nature Need for books, type of books in low SES community	3
50 ESL students	Plans to encourage reading for ESL students Set up library section for ESL students Service ESL parents in the community Deal with tensions resulting from serving ESL students	3
Long-time Secretary	Asked secretary for information	1
Old/New teacher split	Team building between old and new Professional development for old guard Need to win over older staff, so consultative help must come from someone they respect Possible transfers for old guard (long term) Old/new conflict considered as a factor in timing transfer of librarian Ad hoc program committees to have both new/old teachers Use librarian (an experienced teacher) as catalyst to get old guard accepting library program	9
Poor staff morale	Build up staff morale, team co-operation	2
Whole Language Program	Build up resources to support whole language	2
Downtown urban location	Therefore, will have nearby schools; consult with their principals	1
Supportive Area Superintendent	Use superintendent to get transfer for librarian	1

Use of fact finding information in solutions to the case study
NUMBER refers to the number of respondents who utilized a particular fact.

FIGURE 1

QUESTASK WITH TOPCOV BY GROUP

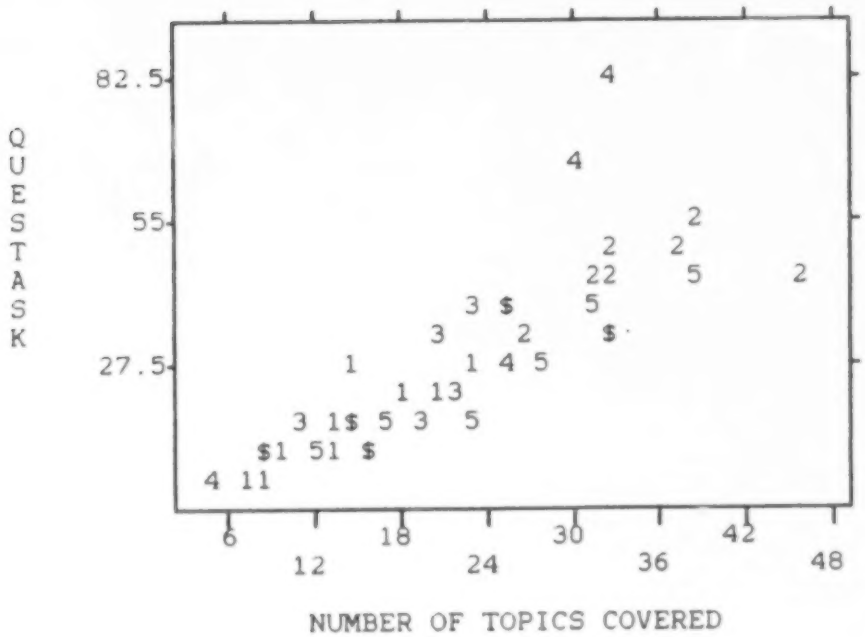


FIGURE 2

QUALMEAN WITH TOPCOV BY GROUP

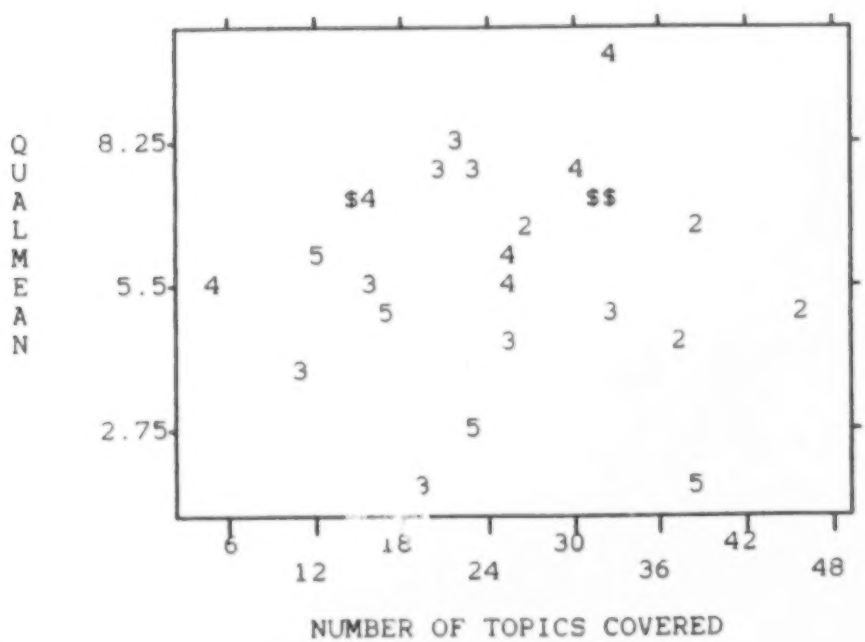


FIGURE 3

QUALMEAN WITH CATCOV BY GROUP

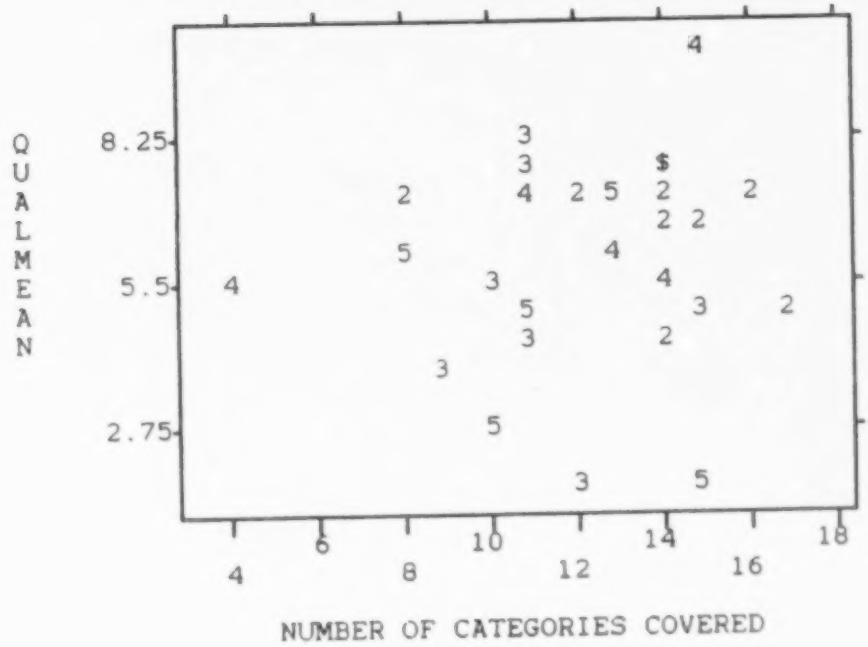
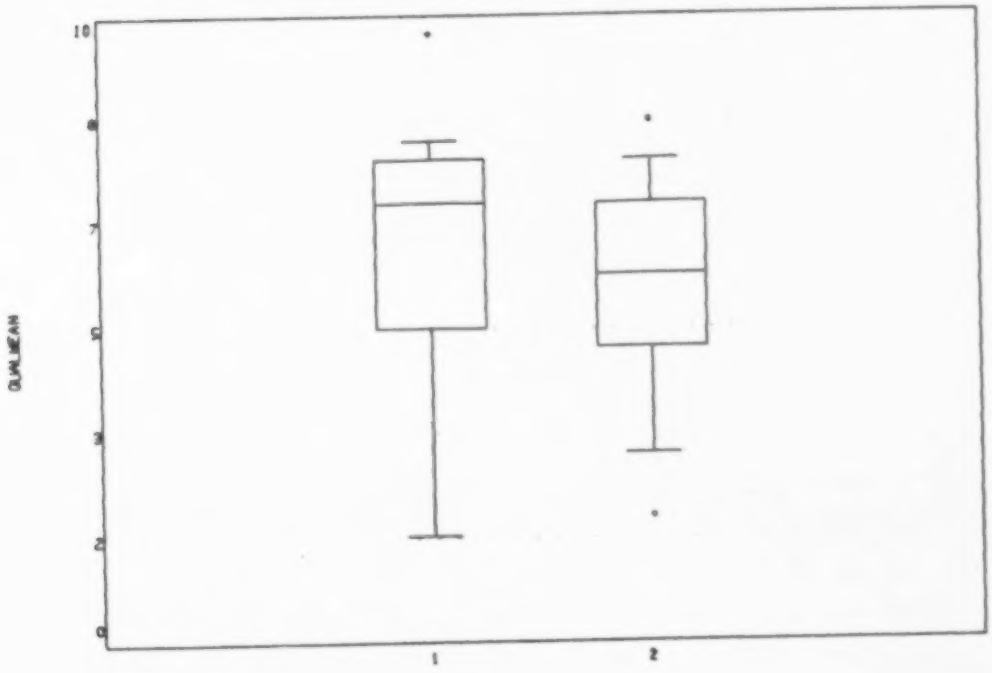


FIGURE 4

QUALITY RATING BY USE OF INFORMATION



1 = Used FF 2 = Did not use FF

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APPENDIX

BACKGROUND INFORMATION: SUGAR MAPLE PUBLIC SCHOOL

Student Population:

September enrolment:
- Junior Kindergarten (3 classes) - 53
- Kindergarten (3 classes) - 46
- Grade one (2 classes) - 38
- Grade two (2 classes) - 35
- Grade three (2 classes) - 37
- Grade four - 34
- Grade five - 31
- Grade six - 35
- Grade seven - 34
- Grade eight - 35
- Developmentally handicapped - 11

Total = 389
Subtotal (Grades 1,2,3) = 110
Subtotal (Grades 4,5,6) = 100
Subtotal (Grades 7,8) = 69

Sugar Maple P.S. has a segregated class of developmentally handicapped children, with its own full-time aide. These children have not to date been integrated with regular classroom pupils in any activities.

The school's population is expected to increase by 4% a year for the next four or five years.

The System:

Thames Falls Board of Education is a mid-sized board. There are 42 elementary schools. There are approximately 600 teachers for the 12,000 students in the elementary schools. There are 7 secondary schools and approximately 7000 students and 400 teachers.

There are three superintendents of schools, a superintendent of academic affairs, a superintendent of special education and a superintendent of business employed by the board. There is no personnel officer at the superintendent level. A staff development coordinator and a personnel manager (negotiations and records) report to the superintendent of academic affairs.

There isn't any library resource consultant, or person with an equivalent position. There is a language arts consultant whose responsibilities include library resource work. Because of the demands from her other areas of responsibility, the library work has not been a priority.

There is an employee assistance program, which has a psychotherapy provision.

The teachers have 20 sick days a year, which may include mental health days.

Budget: Principals are to request monies required to provide resources to meet Board and Ministry standards. Budget requests are to be submitted by January of each year. Final budget allocations

are approved by the central administration before submitting requests to trustees. The principal has a discretionary budget of average size.

Community Information:

Sugar Maple is located in a lower-middle class area of a small city. There are new high-rise low-income apartment buildings which cater mostly to immigrant families. Plans are under way to build new apartment buildings in the same area to meet the influx of immigrant families into the area.

There is a weak parent teacher association. Most of the parents have little association with the school. There are no parent volunteers.

40% of the children come from single-parent homes. The majority of the children are latch-key children.

Parents want the school to give their children the skills needed for a job and keep them out of trouble. There are no other demands placed on the school by the community, although some parents have grumbled that the playground equipment should be upgraded like that of the suburban schools and that the ESL program should be held at Sugar Maple.

The community does not use the school for any community programs.

Physical Facilities:

The school was built 60 years ago. It is a former high school which was extensively remodelled 20 years ago to serve as an elementary school.

There are 18 classrooms - 10 upstairs and 8 downstairs. All of the classrooms are used full-time: three JK and kindergarten rooms, eleven classrooms for grades 1-8, a special education classroom, and converted rooms for the library, family studies and industrial arts. The resource withdrawal program operates in one of the administrative offices.

There is a basement which houses the heating system (20 years old) and custodial work and storage rooms. There is no air conditioning, but the insulation meets modern standards.

There is a large staff room, three small administrative offices and a secretarial/reception area, all on the main floor. There is an intercom system for the school.

The library is housed in a converted classroom, upstairs at one end of the building. The library collection needs to be weeded and has not been well maintained.

There is a small playground area with a basketball area. The only playground equipment currently in place is a swing set and see saw. PTA's at some of the more affluent schools have bought new playground equipment for their schools. Parents at Sugar Maple are poorer and have not organized to buy new equipment, but they sometimes grumble that the board should provide their school with better playground equipment.

The building is structurally sound and has passed all safety inspections. The roof is 10 years old.

There is a gymnasium, with a stage at one end.

There are no lunch facilities. Approximately half of the students stay for lunch and they eat in their classrooms, supervised by paid assistants.

There is a classroom each for family studies and industrial arts and they are fully equipped.

There are stairs at all entrances to the building. A ramp has been installed at the rear entrance to accommodate the developmentally handicapped class. There is no elevator, chair lifts or ramps for use between floors.

The washroom facilities were renovated when the school was remodelled, and are quite adequate.

Program:

The school has no statement of philosophy or mission.

The primary grades use a whole language approach.

The junior and intermediate programs adhere to board guidelines, but are traditional in delivery. One staff member would like to upgrade the science program, which is primarily textbook based, but money would have to be committed from the school budget for the necessary resources. The former principal and some of the teachers were not convinced of its necessity.

French is taught for one period a day for grades three to eight.

The music program has no special facilities and no special equipment, except three pianos, and is therefore only a vocal program.

There is a resource withdrawal program operating for all grade levels from one to eight, which uses one of the administrative offices. It is overtaxed and the resource withdrawal teacher has stated that the program should be expanded; she cannot meet the needs of the students on the half-time basis allotted to it.

There is no gifted program. The board operates a withdrawal program; students (grades 4-8) are transported to another school for one-half day a week. Each year, approximately 5 students are part of this program.

Pupils who require English as a Second Language instruction (approximately 50) are bussed to another school (also with a large immigrant population) one morning a week. The parents have sometimes expressed the wish that the ESL program be held in the local school.

There is a scheduled library program, with each student from Kindergarten to Grade 8 involved in one scheduled library period per week.

Resources:

Textbooks are in adequate supply.

The audio-visual equipment inventory meets board standards.

The kindergarten and junior kindergarten rooms are well equipped.

There are two micro-computers in the school supplied by the board. They are moved from classroom to classroom, as needed. However, because there isn't any elevator, they tend to remain on the upper floor. Younger staff members would like the school to buy more microcomputers to allow for more innovative programming, particularly at the junior/intermediate level. The older staff members do not think the amount of use would justify the expenditure.

There is very little science equipment--only board-issued science kits, from which resources often have been lost or broken. One teacher has argued for increased resources and more training for the teachers to upgrade the science program.

The music program is in need of upgrading. The school has only three pianos (in the JK/K rooms) so the program has been confined to vocal music. There has been some pressure from trustees and the board program department to institute an instrumental music program, or at the very least a recorder program, for grades 7 and 8 in those schools which do not currently have such a program. Again, money would have to be found for the instruments, music, etc.

The physical education equipment meets minimum board standards. The physical education specialist has been pushing for the school to buy additional equipment (more balls, some more gymnastic equipment, some more mats).

The family studies and industrial arts rooms are well-equipped.

The Resource Centre:

The library has its own facility upstairs at the end of the building; it is a converted classroom and space is limited. However, the floor is carpeted and there are adequate shelves, tables and chairs given the space limitations.

The collection needs weeding and has not been consistently updated. There are few modern or new books. The teacher-librarian has requested an increased budget to update the collection, but the previous principal (who had been there for 8 years) placed low priority on library services and used his discretionary budget elsewhere, e.g., on audio-visual equipment, the family studies and industrial arts program, and the kindergarten rooms.

The library does not have any computer facilities for either student or administrative use. It does have adequate audio-visual resources.

There are regularly scheduled periods for each class at the resource centre of one hour per week. In addition, classes can be scheduled in at other times.

Students may come to the library at other times with their teacher's permission and if the librarian has previously been notified in advance of the time and objectives, and formally approved them. Both the formality of the procedure and collection limitations have minimized such use.

An inventory of the collection is made at the end of each school year. Each year there are an above average number of damaged or missing books.

The senior teachers tend to use their class's library period as preparation time or for a coffee break, rather than working cooperatively with the teacher-librarian. This understanding between the librarian and senior teachers has gone on for at least five years.

There aren't any parent volunteers who help in the library.

There have never been any community or school activities to fund raise for the library.

Teachers appreciate the scheduled library periods. They would like an updated collection, and some of the teachers (usually the younger people) would like greater opportunity to send small groups to the library for special projects.

Staff:

The principal has full administrative time. The vice-principal, who has been at Sugar Maple for 6 years, has half-time release for administrative duties.

There are 17 FTE teachers on staff, including a full-time librarian, one with specialist physical education training, three with special education training (including the two teachers for the developmentally handicapped classes), a full-time French teacher and the vice principal. There is no one with ministry certification in guidance or music.

The resource withdrawal is taught on half days by one of the classroom teachers, who has special education training.

There is an aide for the developmentally handicapped students.

The staff consists of a combination of older teachers and recent graduates. Many of the older teachers have been at the same school for more than a dozen years, and some of them have in excess of 25 years teaching experience. Relationships among staff are not always smooth, and morale is not always good.

There is a full-time school secretary who has been there for 14 years.

There is a full-time custodian who was transferred from another school 3 years ago. There are three part-time janitors.

The Teacher-Librarian, Miss McDonald:

Miss McDonald has served as the school's librarian for 15 years. She has the formal library qualification, School Librarianship Part 1, which she obtained just prior to the release of the Partners In Action document, (1982).

She has 18 years total educational experience.

She attended a system-wide PD session on Partners In Action, shortly after that document was released. She accepted the philosophy as presented in that session, but has had no further training to assist her in implementing those ideas.

She is a full-time teacher-librarian and has no other classes.

In the past year she used all of her sick days, but never more than three days consecutively. She had no major illnesses.

Miss McDonald is not a forceful person. She has suggested that there be more cooperation between teachers and herself, but yields to the experienced teachers' expectations that she will supervise scheduled library periods on her own, in order to give them preparation time. She tries to enforce

a dual teaching/student supervisory role with other teachers, which has led to resentment on their part and increased frustration for Miss McDonald.

There are no other teachers on staff with teacher-librarian qualifications.

Summary of Problems:

. The resource centre--usage, resources, personnel.

. Lack of resources in:
Music--there is pressure to introduce an instrumental program;
PE--PE specialist feels more equipment is needed;
Computers--there are only two; none in the library;
Playground equipment--inadequate.

. Resource withdrawal program cannot meet needs.

. One teacher complains of poor science program.

. Inaccessibility of second floor (and limited accessibility to first floor) for handicapped.

. Lack of philosophy/mission.